



IBM System Storage N series N3220 offers enterprise-class Fibre Channel, iSCSI, and NAS storage

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At a glance

IBM® System Storage® N3220 is an entry-level system using internal SAS disk technology that replaces the traditional second-tier systems. It is a 2U, high-density system containing 12 to 24 internal, 2.5-inch SAS disk drives. External disk storage expansion units can also be attached for up to a total of 144 spindles. The maximum capacity of the system is 374 TB of physical storage.

For ordering, contact your IBM representative, an IBM Business Partner, or IBM Americas Call Centers at 800-IBM-CALL (Reference: YE001).

Overview

IBM System Storage N3220 is available as a single-node (Model A12) and as a dual-node (Model A22) (active-active) base unit. Both models are designed to provide fast data access, simultaneous multiprotocol support, expandability, upgradability, and low maintenance.

Model 2857-A12

N3220 Model A12 is a single-node storage controller, designed to provide HTTP, Internet Small Computer System Interface (iSCSI), NFS, CIFS, and Fibre Channel Protocol (FCP) support via optional features. Model A12 is a 2U storage controller that must be mounted in a standard 19-inch rack. Model A12 can be upgraded to a Model A22. However, this is a disruptive upgrade.

Model 2857-A22

N3320 Model A22 is designed to provide identical functions as the single-node Model A12, but with the addition of a second processor control module (PCM) and the Clustered Failover (CFO) licensed function. Model A22 consists of two PCMs that are designed to provide failover and failback function, helping improve overall availability. Model A22 is a 2U rack-mountable storage controller.

Feature exchange

None

Key prerequisites

The IBM System Storage N series requires Fibre Channel (FC), NFS, CIFS, or Internet Small Computer System Interface (iSCSI), protocol function.

Planned availability date

March 9, 2012

Description

Both IBM System Storage N3220 models are designed to provide:

- High data availability and system-level redundancy to help address the needs of business-critical and mission-critical applications
- Single, integrated architecture to support concurrent block I/O and file serving over Ethernet and Fibre Channel (FC) SAN infrastructures
- High throughput and fast response times for database, email, and technical applications
- 24 Serial Attached SCSI (SAS) disk drives (via optional features)
- Support for both block I/O via FC and iSCSI, and file I/O via CIFS, NFS, HTTP, and FTP protocols
- Support for a maximum of 144 disk drives for a maximum of 374.4 TB of physical storage capacity
- Up to 6 GB of random access memory (per node)
- Optional 10 Gb Ethernet or 8 Gb Fibre Channel ports
- Two onboard SAS ports (per node)
- Upgrade capability from Model A12 to Model A22

N3220 storage controllers support the EXN1000 SATA storage expansion unit, EXN4000 FC storage expansion units, the EXN3000 SAS/SATA storage expansion unit, and the high-density EXN3500 SAS storage expansion unit.

These models are designed to provide fast data access, simultaneous multiprotocol support, expandability, upgradability, and low maintenance. Additional functions, such as snapshot, mirroring, and business continuance capability, are available through optional licensed features.

N3220 storage controllers are designed to interoperate with products capable of data transmission in the industry-standard iSCSI, CIFS, FCP, and NFS protocols. These include the IBM System p®, IBM System i® (NFS only), IBM System x®, and IBM System z® (NFS only) servers.

Model A12 is designed to provide a single-node storage controller with iSCSI support, and NFS, CIFS, and FCP support via optional features. Model A12 is a 2U rack-mountable storage controller.

Model A12 includes:

- 2U, standard 19-inch rackmount enclosure
- One 1.73 GHz Intel™ dual-core processor
- Up to 6 GB random access ECC memory
- Four integrated Gigabit Ethernet RJ45 ports
- Two SAS ports
- One serial console port
- One integrated Remote LAN Management (RLM) port
- Redundant hot-swappable, auto-ranging power supplies and cooling fans

Model A12 may be upgraded to a Model A22, however this is a disruptive upgrade.

Model A22 is designed to provide identical function as the Model A12, but with the addition of a second processor control module (PCM) and the Clustered Failover

(CFO) licensed function. Model A22 also supports a maximum of 144 drives. The two PCMs are designed to provide failover and failback function, helping improve overall availability. Model A22 is a 2U rack-mountable storage controller.

Model A22 includes:

- 2U, standard 19-inch rackmount enclosure (A22)
- Two 1.73 GHz Intel dual-core processors
- Up to 12 GB random access ECC memory (6 GB per controller)
- Eight integrated Gigabit Ethernet RJ45 ports
- Four SAS ports
- Two serial console ports
- Two integrated Remote LAN Management (RLM) ports
- Redundant hot-swappable, auto-ranging power supplies and cooling fans

N3220 storage controllers can attach a maximum of six FC storage expansion units, either EXN1000 or EXN4000. The maximum number of EXN3000 SAS/SATA or EXN3500 SAS storage expansion units that can be attached is nine. On the initial order of an N3220 system, either SAS attached or FC attached expansion units may be ordered, not both.

The EXN1000 storage expansion unit provides a 3U rack-mountable disk enclosure containing 5, up to a maximum of 14, serial advanced technology attachment (SATA) disk drives, either in 250 GB, 500 GB, 750 GB, 1 TB, or 2 TB physical capacities. The EXN4000 storage expansion unit provides a 3U rack-mountable disk enclosure containing 5, up to a maximum of 14, FC disk drives. The EXN4000 supports the following FC disk drive speeds and capacities:

- 15,000 revolutions per minute (15K RPM) of 144 GB, 300 GB, 450 GB, and 600 GB physical capacities
- 10,000 revolutions per minute (10K RPM) of 144 GB and 300 GB physical capacities

The EXN3000 storage expansion unit is a 4U rack-mountable disk enclosure containing 5, up to a maximum of 24, SAS or SATA disk drives. The supported disk drives are:

- SAS: 300 GB, 450 GB, and 600 GB physical capacities
- SATA: 500 GB, 750 GB, 1 TB, 2 TB, and 3 TB physical capacities

The EXN3500 storage expansion unit is a 2U rack-mountable disk enclosure containing 5, up to a maximum of 24, 2.5-inch, small form factor (SFF) SAS disk drives. The supported disk drives are:

- SAS: 450 GB and 600 GB physical capacities

The number of disk drives supported by the EXN1000 and EXN4000 storage expansion units is a maximum of 14; for the EXN3000 and EXN3500 the maximum is 24 disk drives. All must be of a particular type (rotational speed and capacity). For the initial order of the N3220 systems, you may not include EXNx000 storage expansion units containing more than two types (rotational speed and capacity) of disk drives.

The maximum raw storage capacity of the N3220 system is determined by the maximum number of disk drives supported and a maximum physical storage limit (in TB). Both limits must be honored.

The following table describes the maximum supported total physical storage capacity for the N3220 Model A12 and Model A22:

Disk enclosure	Disk drive capacity	Maximum storage enclosures	Maximum disk drives	Maximum physical capacity
Internal	450 GB SAS disk drives		24	10.80 TB
	600 GB SAS disk drives		24	14.40 TB

The following table describes the maximum supported total external physical storage capacity for N3220 models:

Disk enclosure	Disk drive capacity	Maximum storage enclosures	Maximum disk drives	Maximum physical capacity
EXN1000	250 GB SATA disk drives	6	84	21.00 TB
EXN1000	500 GB SATA disk drives	6	84	42.00 TB
EXN1000	750 GB SATA disk drives	6	84	63.00 TB
EXN1000	1 TB SATA disk drives	6	84	84.00 TB
EXN1000	2 TB SATA disk drives	6	84	168.00 TB
EXN3000	300 GB SAS disk drives	9	120	36.00 TB
EXN3000	450 GB SAS disk drives	9	120	54.00 TB
EXN3000	500 GB SAS disk drives	9	120	60.00 TB
EXN3000	600 GB SAS disk drives	9	120	72.00 TB
EXN3000	500 GB SATA disk drives	9	120	60.00 TB
EXN3000	1 TB SATA disk drives	9	120	120.00 TB
EXN3000	2 TB SATA disk drives	9	120	240.00 TB
EXN3000	3 TB SATA disk drives	9	120	360.00 TB
EXN3500	450 GB SAS disk drives	9	120	54.00 TB
EXN3500	600 GB SAS disk drives	9	120	72.00 TB
EXN4000	144 GB FC disk drives	6	84	11.76 TB
EXN4000	300 GB FC disk drives	6	84	25.20 TB
EXN4000	450 GB FC disk drives	6	84	37.80 TB

EXN1000 SATA storage expansion units must not share a FC loop with EXN4000 FC storage expansion units. EXN3000 SAS/SATA storage expansion units must not share a SAS stack with EXN3500 SAS storage expansion units.

Section 508 of the US Rehabilitation Act

A U.S. Section 508 Voluntary Product Accessibility Template (VPAT) containing details on accessibility compliance can be requested at

http://www.ibm.com/able/product_accessibility/index.html

Product number

Description	Machine	Model	Feature
N3220 Model A12	2857	A12	
N3220 Model A22	2857	A22	
Hardware features			
Fibre Channel wrap plug - LC	2857	A12, A22	1044
FC cable, 50u, 31m, LC/LC	2857	A12, A22	1051
FCoE SFP+ copper cable, 5m	2857	A12, A22	1055
10 GbE SFP+	2857	A12, A22	2013
8 Gb FC Mezzanine	2857	A12, A22	2030
10 GbE Mezzanine	2857	A12, A22	2031
HDD Blank Panel	2857	A12, A22	4099
450 GB SAS Drive	2857	A12, A22	4100
600 GB SAS Drive	2857	A12, A22	4101
600 GB FDE-SAS Drive	2857	A12, A22	4201
Licensed Function Indicators			
Data ONTAP Essentials	2857	A12	A8P0
FCP	2857	A12	A8P1
iSCSI	2857	A12	A8P2
CIFS	2857	A12	A8P3
NFS	2857	A12	A8P4

Data ONTAP	2857	A12	A8P7
SnapRestore	2857	A12	A8P8
SnapMirror	2857	A12	A8P9
SnapVault	2857	A12	A8PA
FlexClone	2857	A12	A8PB
SnapManager Suite	2857	A12	A8PC
Complete Bundle	2857	A12	A8PD
Data ONTAP Essentials	2857	A22	A8PH
FCP	2857	A22	A8PJ
iSCSI	2857	A22	A8PK
CIFS	2857	A22	A8PL
NFS	2857	A22	A8PM
Data ONTAP	2857	A22	A8PQ
SnapRestore	2857	A22	A8PR
SnapMirror	2857	A22	A8PS
SnapVault	2857	A22	A8PT
FlexClone	2857	A22	A8PU
SnapManager Suite	2857	A22	A8PV
Complete Bundle	2857	A22	A8PW
Host software			
SnapDrive for UNIX™ - AIX®	2857	A12, A22	8024
SnapDrive for UNIX - Solaris	2857	A12, A22	8025
SnapDrive for UNIX - HPUX	2857	A12, A22	8026
SnapDrive for UNIX - Linux™	2857	A12, A22	8027
SnapDrive for windows™	2857	A12, A22	8050
ONTAP DSM for windows MPIO	2857	A12, A22	8052
SnapManager/Oracle - WIN	2857	A12, A22	8129
SnapManager/Exchange - Host	2857	A12, A22	8131
SnapManager/VI - Host	2857	A12, A22	8133
SnapMgr Hyper-V - Host	2857	A12, A22	8135
SnapManager for SAP - win	2857	A12, A22	8140
SnapManager for SQL - Host	2857	A12, A22	8141
SnapManager for oracle	2857	A12, A22	8143
SnapManager for SAP	2857	A12, A22	8145
SnapManager SharePoint-Host	2857	A12, A22	8147
SM SharePoint Mgmt. Bundle	2857	A12, A22	8149
Single Mbox Recovery 100pk	2857	A12, A22	8150
Single Mbox Recovery 500pk	2857	A12, A22	8151
Single Mbox Recovery 1000pk	2857	A12, A22	8152
Single Mbox Recovery 2500pk	2857	A12, A22	8153
Single Mbox Recovery 5K pk	2857	A12, A22	8154
Single Mbox Recovery 10K pk	2857	A12, A22	8155
Single Mbox Recovery 50K pk	2857	A12, A22	8156
SMBR CA-ARCSERVE Extract Wiz	2857	A12, A22	8158
SMBR Tivoli® Tape Extract wiz	2857	A12, A22	8159
SMBR Legato Tape Extract wiz	2857	A12, A22	8160
SMBR NetBackup Extract wiz	2857	A12, A22	8161
SMBR PST Tape Extract wiz	2857	A12, A22	8162
SMBR HP Extract Wiz	2857	A12, A22	8163
SMBR Commvault Galaxy Ex Wiz	2857	A12, A22	8164
SMBR UltraBac Extract Wizard	2857	A12, A22	8165
SMBR Agent for Adv Search	2857	A12, A22	8166
SMBR Content Analysis Wizard	2857	A12, A22	8167
SMBR Administrative Server	2857	A12, A22	8168
SMSP Archiver - Host	2857	A12, A22	8186
OnCommand Core	2857	A12, A22	8255
Power Cords			
PDU Pwr Cord, 42U Rack	2857	A12, A22	9000
Power Cord, Cont. Europe	2857	A12, A22	9001
Power Cord, UK	2857	A12, A22	9002
Power Cord, Japan	2857	A12, A22	9003
Power Cord, North America	2857	A12, A22	9004
Power Cord, Australia/N.Z.	2857	A12, A22	9005
Power Cord, Switzerland	2857	A12, A22	9006
Power Cord, Argentina	2857	A12, A22	9007
Power Cord, China	2857	A12, A22	9008
Power Cord, Denmark	2857	A12, A22	9009
Power Cord, India/S.Africa	2857	A12, A22	9010
Power Cord, Israel	2857	A12, A22	9011
Power Cord, Italy	2857	A12, A22	9012

Power Cord, N.America 250V	2857	A12, A22	9013
Power Cord, Brazil	2857	A12, A22	9014
Power Cord, Taiwan	2857	A12, A22	9015
Power Cord, Taiwan 250V	2857	A12, A22	9016
Installation			
Plant install in 2101 rack	2857	A12, A22	9201
Field install rack mount kit	2857	A12, A22	9202
Uninstalled code authorization	2857	A12, A22	9550
MES ordering			
MES Order Indicator	2857	A12, A22	9555
IBM Global Finance transaction			
IGF Transaction Indicator	2857	A12, A22	9556
Port/loop counts			
Num. of FC Target Ports	2857	A12, A22	9557
Num. of FC Storage Loops	2857	A12, A22	9558
Num. of SATA Storage Loops	2857	A12, A22	9559
Dual-path			
Dual-path FC Cabling	2857	A22	9560

Model Conversions

From Type	Model	To Type	Model	Description
2857	A12	2857	A22	N3220 Model A22

Feature conversions

Type	From	To	Description
2857	A8P0	A8PH	Data ONTAP Essentials
2857	A8P1	A8PJ	FCP
2857	A8P2	A8PK	iSCSI
2857	A8P3	A8PL	CIFS
2857	A8P4	A8PM	NFS
2857	A8P7	A8PQ	Data ONTAP
2857	A8P8	A8PR	SnapRestore
2857	A8P9	A8PS	SnapMirror
2857	A8PA	A8PT	SnapVault
2857	A8PB	A8PU	FlexClone
2857	A8PC	A8PV	SnapManager Suite
2857	A8PD	A8PW	Complete Bundle

Additional information

Feature descriptions

Hardware features

Fibre Channel wrap plug - LC (#1044)

This wrap plug feature is used to terminate unused FC initiator ports on the N series hardware. Initiator ports are ports that are normally used to connect to back end storage, either tape or disk. Any empty ports should be terminated to avoid warnings during startup. These are not required for target ports (used to connect to host systems) as target ports are self-terminating.

FC cable, 50u, 31m, LC/LC (#1051)

This 50-micron FC cable is 31 meters long with an LC connector on each end. Its intended use is connecting the N series machine to its host system.

FCoE SFP+ copper cable, 5m (#1055)

This feature provides a 5-meter passive, copper, SFP+ cable for connecting the copper-cabled Fibre Channel over Ethernet (FCoE) adapters on N series controllers to a Cisco FCoE switch.

8 Gb FC Mezzanine (#2030)

This feature provides a mezzanine card with two Fibre Channel ports that will auto-negotiate to 1, 2, 4, or 8 Gbps speeds. One of feature #2030 is required, per controller, for installations utilizing Fibre Channel connectivity. This card can be configured either as an initiator or a target. There are no on-board Fibre Channel ports on the N3220.

10 GbE Mezzanine (#2031)

This feature provides a mezzanine card with two 10 Gbps Ethernet ports that utilize SFP+ connections to the network. One of feature #2031 is required per controller for 10 Gbps network connections.

HDD Blank Panel (#4099)

This feature provides one blank panel used to close the space left vacant by the removal of a disk drive. The disk bay must not be left open; this feature covers the opening.

450 GB SAS Drive (#4100)

This feature provides one 450 GB SAS Small Form Factor (SFF) drive. Physical storage capacity is up to 450 GB.

600 GB SAS Drive (#4101)

This feature provides one 600 GB SAS SFF drive. Physical storage capacity is up to 600 GB.

600 GB FDE-SAS Drive (#4201)

This feature provides one 600 GB SAS SFF disk capable of encrypting its data at the disk level. The implementation employs a commonly used encryption technology for use when a high level of encryption security is required. Physical storage capacity is up to 600 GB.

Licensed Function Indicators

Data ONTAP Essentials (#A8P0 and #A8PH)

These features enable the Data ONTAP Essentials licensed function. Data ONTAP Essentials feature includes CFO (dual-node only), SyncMirror, Deduplication, FlexCache, MultiStore, NearStore, HTTP, and DSM for MPIO (25 licenses per controller).

The corequisite IBM 2870 feature must be specified to establish authorization for use of the Data ONTAP Essentials licensed function.

FCP initial (#A8P1 and #A8PJ)

These features enable the FCP licensed function which is designed to provide connectivity to clients that transfer data via the FCP, subject to the client applying a feature activation code made available by IBM. These features are also used for maintenance billing purposes.

The corequisite IBM 2870 feature must be purchased to establish authorization for use of the FCP initial licensed function before the feature activation code is provided by IBM.

Note: The combination of FCP and MultiStore is supported only on virtual filer 0. They are otherwise mutually exclusive.

iSCSI (#A8P2 and #A8PK)

These features enable the iSCSI licensed function which is designed to provide connectivity to clients that transfer data via the iSCSI protocol. You must apply a feature activation code made available by IBM. These features are also used for maintenance billing purposes.

The corequisite IBM 2870 feature must be purchased to establish authorization for use of the NFS licensed function before the feature activation code is provided by IBM.

CIFS (#A8P3 and #A8PL)

These features enable the CIFS licensed function which is designed to provide connectivity to clients that transfer data via the CIFS protocol. This feature is also used for maintenance billing purposes.

The corequisite IBM 2870 feature must be purchased to establish authorization for use of the CIFS licensed function before the feature activation code is provided by IBM.

Note: Only one of the initial protocol features may be ordered and installed on the N series system.

NFS (#A8P4 and #A8PM)

These features enable the NFS licensed function subject to the client applying a feature activation code made available by IBM. The NFS licensed function is designed to provide connectivity to clients that transfer data via the NFS protocol. These features are also used for maintenance billing purposes.

The corequisite IBM 2870 feature must be purchased to establish authorization for use of the NFS licensed function before the feature activation code is provided by IBM. The licensed function before the feature activation code is provided by IBM.

Data ONTAP (#A8P7 and #A8PQ)

These features enable the Data ONTAP licensed function. Data ONTAP is an optimized, scalable, and flexible operating system for the IBM N series storage controllers that is designed for heterogeneous environments. Data ONTAP is designed to deliver flexible management and high availability, support business continuance, and support data retention, thereby helping reduce storage management complexity within the enterprise.

The corequisite IBM 2870 feature must be specified to establish authorization for use of the Data ONTAP licensed function.

SnapRestore (#A8P8 and #A8PR)

These features enable the SnapRestore licensed function subject to the client applying a feature activation code made available by IBM. SnapRestore is designed to help an enterprise recover from data loss that may occur due to user error, viruses, or many other disasters. SnapRestore is designed to help users recover data, from individual files to multi-terabyte volumes, using snapshot copies to help enable quick resumption of operations. This feature is also used for maintenance billing purposes.

The corequisite IBM 2870 feature must be purchased to establish authorization for use of the SnapRestore licensed function before the feature activation code is provided by IBM.

SnapMirror (#A8P9 and #A8PS)

These features enable the SnapMirror licensed function subject to the client applying a feature activation code made available by IBM. SnapMirror is designed to replicate data between one or more N series storage controllers, and to continually update the mirrored data to help keep it current and available for disaster recovery, offloading tape backup, read-only data distribution, testing on nonproduction systems, and online data migration. This feature is also used for maintenance billing purposes.

The corequisite IBM 2870 feature must be purchased to establish authorization for use of the SnapMirror licensed function before the feature activation code is provided by IBM.

SnapVault (#A8PA and #A8PT)

SnapVault provides a centralized disk-based backup solution for heterogeneous storage environments. Storing backup data in multiple snapshot copies on the SnapVault secondary storage system from multiple SnapVault primary systems helps let enterprises keep weeks of backups online for fast restoration. Backing up multiple SnapVault primary storage systems to a single SnapShot copy on a large SnapVault secondary storage system can help allow enterprises to centralize their backup and restore operations in a single location. SnapVault primary storage systems can be local or remote N series storage controllers or gateways, Windows servers, or UNIX servers connected via a LAN or a WAN. The SnapVault secondary storage system can also be located at a remote disaster recovery site to help protect against production site failures.

These features include both SnapVault primary and SnapVault secondary functions and are also used for maintenance billing purposes. These features enable the SnapVault licensed function subject to the client applying a feature activation code made available by IBM.

The corequisite IBM 2870 feature must be purchased to establish authorization for use of the SnapVault Primary licensed function before the feature activation code is provided by IBM.

FlexClone (#A8PB and #A8PU)

These features enable the FlexClone licensed function subject to the client applying a feature activation code made available by IBM. FlexClone is designed to enable true cloning -- near-instant replication of data volumes and data sets -- without requiring additional storage space to be preallocated. These features are also used for maintenance billing purposes.

The corequisite IBM 2870 feature must be purchased to establish authorization for use of the FlexClone licensed function before the feature activation code is provided by IBM.

SnapManager Suite (#A8PC and #A8PV)

These features enable the SnapManager Suite of licensed functions subject to the client applying a feature activation code made available by IBM.

SnapManager Suite consists of:

- SnapManager/Exchange - Filer
- SnapManager/SQL - Filer
- SnapManager SharePoint-Filer
- SnapManager Oracle - Filer

- SnapManager SAP - Filer
- SnapManager VI - Filer,
- SnapManager Hyper-V - Filer
- SnapDrive for Win - Filer
- SnapDrive for UNIX - Filer

This feature is also used for maintenance billing purposes.

The corequisite IBM 2870 feature must be purchased to establish authorization for use of the FlexClone licensed function before the feature activation code is provided by IBM.

Complete Bundle (#A8PD and #A8PW)

These features enable the Complete Bundle licensed function. Complete Bundle includes all protocols, SnapRestore, SnapVault, SnapMirror, FlexClone, SnapManager Suite, and Single Mbox Recovery 2500pk.

The corequisite IBM 2870 feature must be specified to establish authorization for use of the Complete Bundle licensed function.

Host software

SnapDrive for UNIX - AIX (#8024)

This feature provides a software application designed to enhance the storage management capabilities in an AIX environment, including easier management of dynamic volume management, cluster management, snapshot management, and replication management. One feature must be ordered for each host on which it will be installed.

Note: Use of this feature with FCP attachment requires the FCP feature. This feature requires an electronically distributed installation file available on the N series Support website. Refer to the [Software requirements](#) section for details.

SnapDrive for UNIX - Solaris (#8025)

This feature provides a software application designed to enhance the storage management capabilities in a Solaris environment, including easier management of dynamic volume management, cluster management, snapshot management, and replication management. One feature must be ordered for each host on which it will be installed.

Note: Use of this feature with FCP attachment requires the FCP feature. This feature requires an electronically distributed installation file available on the N series Support website. Refer to the [Software requirements](#) section for details.

SnapDrive for UNIX - HPUX (#8026)

This feature provides a software application designed to enhance the storage management capabilities in an HP-UX environment, including easier management of dynamic volume management, cluster management, snapshot management, and replication management. One feature must be ordered for each host on which it will be installed.

Note: Use of this feature with FCP attachment requires the FCP feature. This feature requires an electronically distributed installation file available on the N series Support website. Refer to the [Software requirements](#) section for details.

SnapDrive for UNIX - Linux (#8027)

This feature provides a software application designed to enhance the storage management capabilities in a Linux environment, including easier management of dynamic volume management, cluster management, snapshot management, and replication management. One feature must be ordered for each host on which it will be installed.

Note: Use of this feature with FCP attachment requires the FCP feature.

Note: This feature requires an electronically distributed installation file available on the N series Support website. Refer to the [Software requirements](#) section for details.

SnapDrive for Windows (#8050)

This feature provides SnapDrive for Windows function. One feature must be ordered for each host on which it will be installed. It provides a software application that is designed to enhance the storage management capability in a Windows environment, including easier management of dynamic volume management, cluster management, snapshot management, and replication management.

Note: ONTAP DSM for Windows MPIO (#8052) is highly recommended when using feature number 8050 with FCP.

Note: This feature requires an electronically distributed installation file available on the N series Support website. Refer to the [Software requirements](#) section for details.

ONTAP DSM for Windows MPIO (#8052)

This feature provides the multipathing MPIO driver for FC data transmission in Windows environments connected to N series machines. It is required when FC multipathing function is required.

Note: Feature number 8052 is highly recommended when using feature numbers 8050, 8140, or 8149 with FCP.

Note: This feature requires an electronically distributed installation file available on the N series Support website. Refer to the [Software requirements](#) section for details.

SnapManager/Oracle - WIN (#8129)

SnapManager for Oracle is designed to integrate with an Oracle Database and automate crucial tasks such as backup, restore, database recovery, and cloning. This feature allows connection of one Oracle host server to a storage controller. One of this feature is required for each Oracle host. SnapManager for Oracle for Windows is available for Oracle databases running on Windows.

Note: When running SnapManager for Oracle for Windows, iSCSI or NFS must be licensed on the N series storage controller. When using NFS protocol, FlexClone is a requirement. FlexClone is optional for iSCSI environments. SnapRestore is always required with SnapManager for Oracle. The necessary SnapDrive code and license are included as part of the SnapManager for Oracle feature.

Note: This feature requires an electronically distributed installation file available on the N series Support website. Refer to the [Software requirements](#) section for details.

For full details on supported OS levels and Oracle database levels, refer to the N series interoperability matrix at

<http://www.ibm.com/servers/storage/nas>

SnapManager/Exchange - Host (#8131)

This feature allows connection of one exchange host server to the storage controller. One of this feature is required for each exchange host. The FCP feature or iSCSI must be installed on the attached storage controller.

Note: SnapManager/Exchange - Host and SnapManager/Exchange - Filer provide identical functions but support different numbers of hosts. Only one or the other is needed, not both. SnapManager/Exchange - Filer allows connectivity to any number of hosts; SnapManager/Exchange - Host allows just one host connection. If the planned number of hosts to be supported, multiplied by the feature #8131 price, is greater than the price of SnapManager/Exchange - Filer, SnapManger/Exchange - Filer may be a more cost-effective choice. Other factors may influence this decision.

Note: This feature requires either FCP or iSCSI Protocol, SnapRestore, and SnapDrive for Windows to be installed on the machine. This feature also requires an

electronically distributed installation file available on the N series Support website. Refer to the [Software requirements](#) section for details.

This feature enables the SnapManager/Exchange - Host licensed function subject to obtaining a feature activation code made available by IBM. This feature is also used for maintenance billing purposes.

SnapManager VI - Host (#8133)

This feature provides SnapManager function for Virtual Infrastructure (VI) environments, utilizing the VMWare system. It is designed to provide snapshot management for any number of N series controllers attached to a single VMWare host.

Note: This feature requires an electronically distributed installation file available on the N series Support website. Refer to the [Software requirements](#) section for details.

SnapMgr Hyper-V - Host (#8135)

This feature is designed to integrate with the Microsoft™ Hyper-V virtual server infrastructure and automate crucial tasks such as backup, restore, recovery, and cloning. It allows one Microsoft Hyper-V server to connect to any number of N series controllers.

Note: Use of this feature with FCP requires the FCP feature, the host attach kit for the appropriate hosts, and one of the SnapDrive for Windows features. If running with iSCSI, the iSCSI protocol feature and appropriate iSCSI host attach kit are required.

SnapManager for SAP - Win (#8140)

This feature is designed to allow SAP administrators in Windows environments to backup and restore a SAP System hosted on an Oracle Database. It is integrated with the interface for SAP br* tools for backup and recovery of SAP systems, as well as with the N series data management tools. It is designed to simplify provisioning and data protection on enterprise SAP systems.

This feature includes feature #8050, SnapDrive for Windows.

One of this feature must be ordered for each host on which it will be installed.

Note: SnapRestore is always required with SnapManager for SAP. The necessary SnapDrive code and license are included as part of the SnapManager for SAP feature.

Note: This feature requires an electronically distributed installation file available on the N series Support website. Refer to the [Software requirements](#) section for details.

SnapManager for SQL - Host (#8141)

This feature allows connection of one SQL host server to the storage controller. One of this feature is required for each SQL host. The FCP feature or iSCSI must be installed on the attached N series storage controller.

Note: SnapManager for SQL - Host and SnapManager/SQL - Filer provide identical functions but support different numbers of hosts. Only one or the other is needed, not both. SnapManager/SQL - Filer allows connectivity to any number of hosts; SnapManager for SQL - Host allows just one host connection. If the planned number of hosts to be supported, multiplied by the feature #8141 price, is greater than the price of SnapManager/SQL - Filer, SnapManager/SQL - Filer may be a more cost-effective choice. Other factors may influence this decision.

This feature enables the SnapManager/SQL - Host licensed function subject to having obtained a feature activation code made available by IBM. This feature is also used for maintenance billing purposes.

Note: This feature also requires an electronically distributed installation file available on the N series Support website. Refer to the [Software requirements](#) section for details.

SnapManager for Oracle (#8143)

SnapManager for Oracle is designed to integrate with an Oracle Database and automate crucial tasks such as backup, restore, database recovery, and cloning. This feature allows connection of one Oracle host server to a storage controller. One of this feature is required for each Oracle host.

Note: FlexClone is required with NFS and is optional for FCP and iSCSI environments. SnapRestore is always required with SnapManager for Oracle. The necessary SnapDrive code and license are included as part of the SnapManager for Oracle feature.

Note: This feature also requires an electronically distributed installation file available on the N series Support website. Refer to the [Software requirements](#) section for details.

SnapManager for Oracle requirements vary depending on the host OS. For full details on supported OS levels, Oracle database levels, and other SnapManager for Oracle requirements, refer to the N series interoperability matrix at

<http://www.ibm.com/servers/storage/nas>

SnapManager for SAP (#8145)

This feature is designed to allow SAP administrators to backup and restore a SAP System hosted on an Oracle Database. It is integrated with the interface for SAP br* tools for backup and recovery of SAP systems, as well as with the N series data management tools. It is designed to simplify provisioning and data protection on enterprise SAP systems.

This feature includes SnapManager for Oracle (#8143). Features #8024 through #8027 and #8143 need not be ordered if SnapManager for SAP (#8145) is ordered.

One of this feature must be ordered for each host on which it will be installed.

Note: FlexClone is required with NFS and is optional for FCP environments. SnapRestore (or a feature that includes SnapRestore) is always required with SnapManager for SAP. The necessary SnapDrive code and license are included as part of the SnapManager for SAP feature.

Note: This feature also requires an electronically distributed installation file available on the N series Support website. Refer to the [Software requirements](#) section for details.

SnapManager SharePoint-Host (#8147)

This feature enables the SnapManager SharePoint-Host licensed function provided the customer has applied a feature activation code that is made available by IBM. SnapManager for Microsoft SharePoint (SMSP) is designed to enable a single console to manage disk-based backup and recovery of SharePoint content databases, portals, sites, subsites, folders, documents, and versions of documents. Deployed in combination with an N series storage system, SnapManager software is designed to provide near-instantaneous hot backups and rapid restores to help achieve a combination of availability, scalability, performance, and reliability for SharePoint environments.

This feature is designed to allow connectivity between a single Microsoft SharePoint server to one N series storage system. It is also used for maintenance billing purposes.

The corequisite 2870 feature number must be purchased to establish authorization for use of the SnapManager SharePoint licensed function before the feature activation code is provided by IBM.

Note: This feature requires an electronically distributed installation file available on the N series Support website. Refer to the [Software requirements](#) section for details.

SM SharePoint Mgmt. Bundle (#8149)

This feature includes SnapManager for SQL - Host (#8141), SnapManager SharePoint-Host (#8147), and SnapDrive for Windows (#8050). It is a feature bundle designed to simplify the feature ordering for SM SharePoint environments.

Note: This feature also requires an electronically distributed installation file available on the N series Support website. Refer to the [Software requirements](#) section for details.

Single Mailbox Recovery

Single Mail Box Recovery for Microsoft Exchange (SMBR) software is designed to provide rapid recovery of single mail boxes, individual folders, or single messages from a valid SnapManager backup to the production Exchange server, to any offline Exchange server, or an Outlook .pst file. The software can help save time and money by avoiding the need for cumbersome and disk-intensive brick level backups or investments in a dedicated recovery server infrastructure.

These features provide the tape extract wizard for NT backup and Veritas; other support must be ordered separately (features #8158 - #8166).

Single Mbox Recovery 100pk (#8150)

This feature provides support for 100 mailboxes.

Note: This feature also requires an electronically distributed installation file available on the N series Support website. Refer to the [Software requirements](#) section for details.

Single Mbox Recovery 500pk (#8151)

This feature provides support for 500 mailboxes.

Note: This feature also requires an electronically distributed installation file available on the N series Support website. Refer to the [Software requirements](#) section for details.

Single Mbox Recovery 1000pk (#8152)

This feature provides support for 1,000 mailboxes.

Note: This feature also requires an electronically distributed installation file available on the N series Support website. Refer to the [Software requirements](#) section for details.

Single Mbox Recovery 2500pk (#8153)

This feature provides support for 2,500 mailboxes.

Note: This feature also requires an electronically distributed installation file available on the N series Support website. Refer to the [Software requirements](#) section for details.

Single Mbox Recovery 5K pk (#8154)

This feature provides support for 5,000 mailboxes.

Note: This feature also requires an electronically distributed installation file available on the N series Support website. Refer to the [Software requirements](#) section for details.

Single Mbox Recovery 10K pk (#8155)

This feature provides support for 10,000 mailboxes.

Note: This feature also requires an electronically distributed installation file available on the N series Support website. Refer to the [Software requirements](#) section for details.

Single Mbox Recovery 50K pk (#8156)

This feature provides support for 50,000 mailboxes.

Note: This feature also requires an electronically distributed installation file available on the N series Support website. Refer to the [Software requirements](#) section for details.

SMBR CA-ARCSERVE Extract Wiz (#8158)

The CA-ARCSERVE Extract Wizard is designed to restore both private and public exchange information, and stored data, from tape and disk backups to any alternate location, for example, machine, volume, or folder, helping eliminate the need for a recovery server.

SMBR Tivoli Tape Extract Wiz (#8159)

The Tivoli Extract Wizard is designed to restore both private and public exchange information, and stored data, from tape and disk backups, to any alternate location, for example, machine, volume, or folder helping eliminate the need for a recovery server.

SMBR Legato Tape Extract Wiz (#8160)

The Legato Extract Wizard is designed to restore both private and public exchange information, and stored data, from tape and disk backups to any alternate location, for example, machine, volume, or folder, helping eliminate the need for a recovery server.

SMBR NetBackup Extract Wiz (#8161)

The NetBackup Extract Wizard is designed to restore both private and public exchange information, and stored data, from tape and disk backups to any alternate location, for example, machine, volume, or folder, helping eliminate the need for a recovery server.

SMBR PST Tape Extract Wiz (#8162)

The PST Extract Wizard is designed to restore both private and public exchange information, and stored data, from tape and disk backups to any alternate location, for example, machine, volume, or folder, helping eliminate the need for a recovery server.

SMBR HP Extract Wiz (#8163)

The HP Extract Wizard is designed to restore both private and public exchange information, and stored data, from tape and disk backups to any alternate location, for example, machine, volume, or folder, helping eliminate the need for a recovery server.

SMBR Commvault Galaxy Ex Wiz (#8164)

The Commvault Galaxy Extract Wizard is designed to restore both private and public exchange information, and stored data, from tape and disk backups, to any alternate location, for example, machine, volume, or folder, helping eliminate the need for a recovery server.

SMBR UltraBac Extract Wizard (#8165)

The UltraBac Extract Wizard is designed to restore both private and public exchange information, and stored data, from tape and disk backups to any alternate location, for example, machine, volume, or folder, helping eliminate the need for a recovery server.

SMBR Agent for Adv Search (#8166)

The SMBR Agent for Advanced Search is designed to restore both private and public exchange information, and stored data, from tape and disk backups to any alternate location, for example, machine, volume, or folder, helping eliminate the need for a recovery server.

SMBR Content Analysis Wizard (#8167)

The SMBR Content Analysis Wizard (CAW) is designed to enable you to automate and save search results with Microsoft Exchange by selecting sources, including entire Exchange Database (EDB) files, individual mailboxes from an EDB, or folders from an EDB. Any number of sources is allowed, including multiple EDBs.

CAW provides a method for email administrators to perform content analysis offline from the production server. It is designed to:

- Minimize the time it takes to detect and filter out emails that include specific content
- Minimize the time it takes to detect and filter out a specific type of email file that is being sent or received (for example, specific extension, subject, date), or emails being sent and received
- Analyze the number of emails being sent and received that contain politically incorrect content (for example tasteless jokes or pornography)
- Analyze the number of emails with confidential content that go out unprotected, that is, unencrypted
- Minimize the time it takes to determine if someone is using the system for unauthorized activity (for example, spamming, inappropriate downloads, starting a business)

SMBR Administrative Server (#8168)

This feature is designed to provide a framework that can host centralized services for multiple clients and provide both client and server support for Single Mailbox Recovery 5.0, or later, and Single Mailbox Recovery ExtractWizard users. It facilitates server configuration, mailbox permissions, and application auditing services for SMBR environments.

SMSP Archiver - Host (#8186)

This feature is used with Microsoft SharePoint and SnapManager SharePoint (SMSP) environments to migrate binary large object data (BLOB) into a CIFS share, accessible outside of the SharePoint data structure. This method of externalizing data helps improve scalability of the SharePoint environment while providing access to the data. These CIFS shares can reside on primary (FC/SAS) storage or on secondary storage (SATA), allowing the core SharePoint data and the externalized data to be stored on a single system.

OnCommand Core (#8255)

OnCommand Core is designed to provide a central point of control and to provide alerts, reports, and configuration tools. These tools are designed to help manage storage and content delivery infrastructure, remain consistent with business requirements, help maximize availability, and reduce total cost of ownership.

This feature also provides backup and replication management software for an N series disk-based data protection environment. It is designed to help protect data and support high productivity by providing policy-based management, including when used in automated data protection configurations.

OnCommand Core also provides an automated, policy-based provisioning software for N series environments. The software is designed to automate manual and repetitive provisioning processes, increasing the productivity of administrators and

improving the availability of data by ensuring that provisioned storage complies with data protection policies.

OnCommand has replaced the legacy DFM functionality (Operations Manager, Protection Manager, and Provisioning Manager) with a single package, more closely integrating the management stack of the N series systems. Users of previous versions of the DFM Server feature are automatically entitled to migrate to the OnCommand infrastructure.

This feature provides a license for one OnCommand Core server. One of this feature must be installed on each physical server that is to provide OnCommand Core functions for managing N series storage controllers.

Unlike the previous versions of DFM, only one license of OnCommand is required to support all the management functions of the N series installation, up to 250 nodes. For installations with more than 250 nodes, please either submit an RPQ for support of a large install base on a single OnCommand Core server, or install a second OnCommand Core server.

Note: This feature requires an electronically distributed installation file available on the N series Support web site. Refer to the [Software requirements](#) section for details.

Power (line) cords

Feature Description

#9000	PDU Pwr Cord, 42U Rack
#9001	Power Cord, Cont. Europe
#9002	Power Cord, UK
#9003	Power Cord, Japan
#9004	Power Cord, North America
#9005	Power Cord, Australia/N.Z.
#9006	Power Cord, Switzerland
#9007	Power Cord, Argentina
#9008	Power Cord, China
#9009	Power Cord, Denmark
#9010	Power Cord, India/S.Africa
#9011	Power Cord, Israel
#9012	Power Cord, Italy
#9013	Power Cord, N.America 250V
#9014	Power Cord, Brazil
#9015	Power Cord, Taiwan
#9016	Power Cord, Taiwan 250V

These features provide two power (line) cords to supply external power to the N series system. One power cord feature must be specified, either the PDU power cord for IEC 320, sheet C13 outlets, or one based on the country or region in which the system will be installed.

Rack installation

Either feature number 9201 or 9202, but not both, must be included in the order for any N series system.

Plant install in 2101 rack (#9201)

This feature specifies that the N series system will be installed in an IBM System Storage 2101 Model N42 System Rack by IBM manufacturing prior to shipment. When selecting this feature, a 2101 Model N42 rack order must be tied to the N series order using the multi-system order function.

Field install rack mount kit (#9202)

This feature specifies that the N series system is to be installed in the field in a customer-provided rack. Rack mounting hardware is included. This, or feature number 9201, is a required feature.

Uninstalled code authorization (#9550)

This feature authorizes IBM to ship the N series machine without the software having been preloaded. When this feature is specified, the license function activation codes will be shipped separately. Installation of the activation codes is a customer responsibility.

MES Order Indicator (#9555)

This feature indicates a field order for power cords or cables and will be automatically added by e-config during the first occurrence of a field order for these features. It is for administrative purposes only.

IGF Transaction Indicator (#9556)

This specify feature is used to designate that a new N series system is involved in an IBM Global Finance (IGF) transaction (lease or financing). It is for administrative purposes only.

For a new N series order that includes licensed function features (excluding Data ONTAP), the IGF Transaction Indicator feature must be ordered as a Record Purposes Only (RPO) MES to the N series system. This feature is field-install only and cannot be included on the initial order.

Configuration indicators

Features #9557, #9558, and #9559 must be specified to verify that sufficient FC ports (and sufficient FC expansion cards) are included in the initial order for an N series storage controller.

For a N3220 Model A12, the maximum number of feature #9557 that may be specified is eight and the total of features #9558 and #9559 may not exceed 14.

Num. of FC Target Ports (#9557)

This no-charge feature specifies the number of FC ports that are to be configured as FCP target ports. FCP target ports are used for FC attachment of the N system to application servers (containing FC HBAs) or to FC storage area networks.

This feature is only relevant if you intend to use the FCP feature on the N series system.

Num. of FC Storage Loops (#9558)

This no-charge feature specifies, on the initial order of an N series system, the number of dual-path FC storage loops that are to be configured for the attachment of the total of EXN4000 storage expansion units. The expansion units included in the initial order will be distributed across the specified number of storage loops.

Valid choices are 0 through 1.

Num. of SATA Storage Loops (#9559)

This no-charge feature specifies, on the initial order of an N series storage controller, the number of dual-path FC storage loops that are to be configured for the attachment of EXN1000 SATA storage expansion units. The EXN1000 expansion units, included in the initial order, will be distributed across the specified number of storage loops.

Valid choices are 0 through 1.

Dual-path FC Cabling (#9560) (Model A22 only)

This no-charge, administrative feature enables multipath FC cabling. It is designed to improve reliability, availability, and serviceability of the expansion units attached

to the storage controller by creating two redundant paths from each storage controller to each loop of the expansion units.

This feature requires the order of one additional 5-meter optical cable feature (#2044) and one SFP GBIC feature (#2010 or #2011) on each expansion unit (EXNx000) that will be directly attached to the storage controller.

Note: These are features of the EXN1000 and EXN4000. If dual-path FC cabling is installed, every storage loop of the storage controller must be dual-path.

Feature number 9560 is a plant-only feature -- it may be specified when the N series system is initially ordered. It may not be specified for an MES (field) order. Dual-path FC cabling may be implemented on installed N series storage controllers via an MES order of one each of feature #2010 or #2011, and any of the FC optical cables (#2042, #2043, or #2044) for **each** expansion unit in the configuration that is attached directly to the storage controller. The FC cables must be of sufficient length.

Additional FC adapters may be required if additional ports are needed.

Business Partner information

If you are a Direct Reseller - System Reseller acquiring products from IBM, you may link directly to Business Partner information for this announcement. A PartnerWorld® ID and password are required (use IBM ID).

<https://www.ibm.com/partnerworld/mem/sla.jsp?num=112-001>

Publications

The following publications are shipped with the product:

Title	Order number
Shipped as hardcopy:	
IBM System Storage N3220 Installation and Setup Instructions	GA32-2202
Shipped on CD-ROM, all above, and	
IBM System Storage N3220 and N3240 Hardware and Service Guide	GA32-2201
On the web, all above, and:	
IBM System Storage N series Introduction and Planning Guide	GA32-0543

All of the publications are available on the N series support website

<http://www.ibm.com/storage/support/nseries/>

Publications are only available for download for existing IBM N series customers who have registered their N series products on the N series support site.

Services

Global Technology Services

IBM services include business consulting, outsourcing, hosting services, applications, and other technology management.

These services help you learn about, plan, install, manage, or optimize your IT infrastructure to be an On Demand Business. They can help you integrate your high-speed networks, storage systems, application servers, wireless protocols, and an array of platforms, middleware, and communications software for IBM and many non-IBM offerings. IBM is your one-stop shop for IT support needs.

For details on available services, contact your IBM representative or visit

<http://www.ibm.com/services/>

For details on available IBM Business Continuity and Recovery Services, contact your IBM representative or visit

<http://www.ibm.com/services/continuity>

For details on education offerings related to specific products, visit

<http://www.ibm.com/services/learning/index.html>

Select your country, and then select the product as the category.

Technical information

Specified operating environment

Physical specifications

IBM System Storage N3220 Model A12/A22

width: 44.7 cm (17.61 in.)

Depth: 61.9 cm (24.4 in.) with cable management arms
54.4 cm (21.4 in.) without cable management arms

Height: 8.5 cm (3.4 in.)

weight: 25.4 kg (56 lb)

IBM 2101-N42 rack

width: 65 cm (25.6 in) with side panels

62.3 cm (24.5 in) without side panels

Depth: 109.8 cm (43.3 in) with standard front and rear doors

Height: 201.5 cm (79.3 in)

weight: 215.5 kg (475 lb)

weight: Add 2.3 kg (5.0 lb) for each 2U Rail Kit

weight: Add 4.6 kg (10.2 lb) for each 3U Rail Kit

weight: Add 4.3 kg (9.5 lb) for each standard PDU

weight: Add 6.1 kg (13.5 lb) for each iPDU

weight: Add 35.0 kg (77.0 lb) for each EXN1000 (14 HDD)

weight: Add 35.8 kg (78.8 lb) for each EXN2000 (14 HDD)

weight: Add 44.6 kg (98.3 lb) for each EXN3000 (24 HDD)

weight: Add 22.7 kg (49 lb) for each EXN3500 (24 HDD)

weight: Add 30.0 kg (66.2 lb) for each EXN4000 (14 HDD)

To assure installability and serviceability in non-IBM industry standard racks, review the installation planning information for any product specific installation requirements.

Operating environment

- Temperature:
 - Maximum range: 10° to 40° C (50° to 104° F)
 - Recommended: 20° to 25° C (68° to 77° F)
 - Non-operating: -40° to 70° C (-40° to 158° F)
- Relative humidity:
 - Maximum operating range: 20% to 80% (non-condensing)
 - Recommended operating range: 40% to 55%

- Non-operating range: 10% to 95% (non-condensing)
- Maximum wet bulb: 29° C
- Maximum altitude: 3050 m (10,000 ft.)

Note: Operating at extremes of environment may increase failure probability.

- Wet bulb (caloric value): 2270 Btu/hr
- Maximum electrical power: 100-240 V ac, 8-3 A per node, 50-60 Hz
- Nominal electrical power: 100-120 V ac, 16 A; 200-240 V ac, 6 A, 50-60 Hz
- Noise level:
 - 66 dBA at 1 m at 23° C
 - 7.2 bels at 1 m at 23° C

Hardware requirements

Licensed machine code (LMC)

The N3220 requires LMC level 8.0.2, or later. Some N3220 features and functions may not be available or supported in all environments. Current information on supported environments, prerequisites, and minimum operating systems levels is available at

<http://www.ibm.com/servers/storage/nseries>

Current license terms for the machine code provided with this product prohibit transfer of the machine code without approval from NetApp.

Licensed functions

Data ONTAP (feature) is *required* on every N3220 platform. In addition, for dual-node models the CFO function is required; the Data ONTAP Essentials feature includes CFO.

Licensed functions require the selection of N3220 Model A12 or Model A22 features and the acquisition of the corresponding IBM 2870 Model 571 or Model 572, respectively, function authorization features.

Software requirements

Current information on servers, operating systems, host adapters, and connectivity products supported by the N3220 are available at

<http://www.ibm.com/servers/storage/nas>

The required 2870 license features are the same as for the equivalent 2857 Model A12 and Model A22.

Limitations

- The N3220 is supported only in rack installations.
- This product is functional with the System i and OpenPower® platforms. However, on the System i, support is available only on Linux on Power® and AIX partitions, not i5/OS®.
- Current license terms for the machine code provided with this product prohibit transfer of the machine code without approval from NetApp.

Planning information

Customer responsibilities

Following good safety practice, IBM recommends that three or more persons install this product.

Physical configuration and installation planning for the N3220 is a customer responsibility. Information about physical configuration and installation requirements, including equipment, site, and power requirements, can be found in the *IBM System Storage N3200 Series Filer Installation and Setup Instructions*.

A customer-supplied Ethernet cable is required to connect the machine to a server or Ethernet network.

You are responsible for downloading or obtaining from IBM, and installing designated Machine Code (microcode, basic input/output system code (called BIOS), utility programs, device drivers, and diagnostics delivered with an IBM machine) and other software updates in a timely manner from an IBM Internet website or from other electronic media, and following the instructions that IBM provides. You may request IBM to install Machine Code changes; however, you may be charged for that service.

Cable orders

Fibre Channel cables are required to connect an expansion unit to a N3220 system. Cables can be purchased using expansion unit features.

Installability

Estimated time to unpack an N3220, install it in the rack, and perform a simple discovery and configuration is two hours.

Security, auditability, and control

This product uses the security and auditability features of host hardware, host software, and/or application software to which it is attached.

The customer is responsible for evaluation, selection, and implementation of security features, administrative procedures, and appropriate controls in application systems and communications facilities.

Terms and conditions

Volume orders: Contact your IBM representative.

IBM Global Financing

Yes

Warranty period

Three years

An IBM part or feature installed during the initial installation of an IBM machine is subject to a full warranty effective on the date of installation of the machine. An IBM part or feature which replaces a previously installed part or feature assumes the remainder of the warranty period for the replaced part or feature. An IBM part or feature added to a machine without replacing a previously installed part or feature is subject to a full warranty effective on its date of installation. Unless specified otherwise, the warranty period, type of warranty service, and service level of a part or feature is the same as the machine in which it is installed.

Warranty service

If required, IBM provides repair or exchange service depending on the types of warranty service specified for the machine. IBM will attempt to resolve your problem over the telephone, or electronically via an IBM Web site. You must follow the problem determination and resolution procedures that IBM specifies. Scheduling of service will depend upon the time of your call and is subject to parts availability. If

applicable to your product, parts considered Customer Replaceable Units (CRUs) will be provided as part of the machine's standard warranty service.

Service levels are response time objectives and are not guaranteed. The specified level of warranty service may not be available in all worldwide locations. Additional charges may apply outside IBM's normal service area. Contact your local IBM representative or your reseller for country and location specific information. This product is covered by the following type(s) of service.

Customer Replaceable Unit Service and On-site for other selected parts

Customer Replaceable Unit Service IBM provides replacement CRUs to you for you to install. CRU information and replacement instructions are shipped with your machine and are available from IBM upon your request. CRUs are designated as being either a Tier 1 (mandatory) or a Tier 2 (optional) CRU.

Tier 1 CRU

Installation of Tier 1 CRUs is your responsibility. If IBM installs a Tier 1 CRU at your request, you will be charged for the installation.

For machines with on-site same-day response service IBM will replace a Tier 1 CRU part at your request, at no additional charge.

Tier 2 CRU

You may install a Tier 2 CRU yourself or request IBM to install it, at no additional charge.

Based upon availability, CRUs will be shipped for next business day delivery. IBM specifies, in the materials shipped with a replacement CRU, whether a defective CRU must be returned to IBM. When return is required, 1) return instructions and a container is shipped with the replacement CRU and 2) you may be charged for the replacement CRU if IBM does not receive the defective CRU within 15 days of your receipt of the replacement.

The following parts have been designated as Tier 1 CRU parts:

- AC power cord
- AC power supply
- Disk drive
- Cables
- Memory modules
- Wrap plug
- Operator panel

On-site Service

IBM will repair the failing machine at your location and verify its operation. You must provide a suitable working area to allow disassembly and reassembly of the IBM machine. The area must be clean, well lit, and suitable for the purpose.

- 9 hours per day, Monday through Friday, excluding holidays, next-business-day response

Warranty service upgrades

During the warranty period, warranty service upgrades provide an enhanced level of On-site Service for an additional charge. A warranty service upgrade must be purchased during the warranty period and is for a fixed term (duration). It is not refundable or transferable and may not be prorated. If required, IBM will provide the warranty service upgrade enhanced level of On-site Service acquired by the customer. Service levels are response time objectives and are not guaranteed.

IBM will attempt to resolve your problem over the telephone or electronically by access to an IBM website. You must follow the problem determination and resolution procedures that IBM specifies. Scheduling of service will depend upon the time of your call and is subject to parts availability.

On-site Service

IBM will repair the failing machine at your location and verify its operation. You must provide a suitable working area to allow disassembly and reassembly of the IBM machine. The area must be clean, well lit, and suitable for the purpose. The following service selections are available as warranty upgrades for your machine type.

- 9 hours per day, Monday through Friday, excluding holidays, 4-hour average, same-business-day response, IOR
- 24 hours per day, 7 days a week, 4-hour average response, IOR
- 24 hours per day, 7 days a week, 2-hour average response, IOR

Customer Replaceable Units (CRUs) may be provided as part of the Machine's standard warranty CRU Service except that you may install a CRU yourself or request IBM installation, at no additional charge, under one of the On-site Service levels specified above. For additional information on the CRU service, see warranty information.

Maintenance Services

If required, IBM provides repair or exchange service depending on the types of maintenance service specified for the Machine. IBM will attempt to resolve your problem over the telephone or electronically, via an IBM web site. You must follow the problem determination and resolution procedures that IBM specifies. Scheduling of service will depend upon the time of your call and is subject to parts availability. Service levels are response time objectives and are not guaranteed. The specified level of maintenance service may not be available in all worldwide locations. Additional charges may apply outside IBM's normal service area. Contact your local IBM representative or your reseller for country and location specific information. The following service selections are available as maintenance options for your machine type.

On-site Service

IBM will repair the failing machine at your location and verify its operation. You must provide suitable working area to allow disassembly and reassembly of the IBM Machine. The area must be clean, well lit, and suitable for the purpose.

- 9 hours per day, Monday through Friday, excluding holidays, next-business-day response
- 9 hours per day, Monday through Friday, excluding holidays, 4 hour average response
- 24 hours per day, 7 days a week, 4-hour average response
- 24 hours per day, 7 days a week, 2-hour average response

Customer Replaceable Units

If your problem can be resolved with a CRU (e.g., keyboard, mouse, speaker, memory, or hard disk drive), and depending upon the maintenance service offerings in your geography, IBM will ship the CRU to you for you to install. CRU information and replacement instructions are shipped with your machine and are available from IBM upon your request.

Based upon availability, CRUs will be shipped for next business day delivery. IBM specifies, in the materials shipped with a replacement CRU, whether a defective CRU must be returned to IBM. When return is required, 1) return instructions and a container is shipped with the replacement CRU and 2) you may be charged for the replacement CRU if IBM does not receive the defective CRU within 15 days of your

receipt of the replacement. Customer Replaceable Units (CRUs) may be provided as part of the Machine's standard maintenance service except that you may install a CRU yourself or request IBM installation, at no additional charge, under any of the On-site Service levels specified above.

Warranty service upgrades

Usage plan machine

No

IBM hourly service rate classification

One

When a type of service involves the exchange of a machine part, the replacement may not be new, but will be in good working order.

Field-installable features

Yes

Model conversions

Yes

Machine installation

Customer setup. Customers are responsible for installation according to the instructions IBM provides with the machine.

Graduated program license charges apply

No

Licensed machine code

This product contains, or is provided together with, code which is licensed to the user, not sold. That code is copyrighted and may be the property of IBM, its supplier(s) or other third parties. You are authorized to use the code to the extent set forth in the applicable license agreement(s) provided with the product. You may also obtain a copy of applicable license agreement by contacting your IBM representative.

Current license terms for the machine code provided with this product prohibit transfer of the machine code without approval from NetApp.

Machines using machine code: 2857-A12 and 2857-A22.

IBM may release changes to the machine code. IBM plans to make the machine code changes available for download from the IBM System Storage technical support website

<http://www-03.ibm.com/servers/storage/support/nas/n3220/downloading.html>

If the machine does not function as warranted and your problem can be resolved through your application of downloadable machine code, you are responsible for downloading and installing these designated machine code changes as IBM specifies. If you would prefer, you may request IBM to install downloadable machine code changes; however, you may be charged for that service.

Educational allowance

A reduced charge is available to qualified education customers. The educational allowance may not be added to any other discount or allowance.

The educational allowance is 15% for the products in this announcement.

Pricing

Product charges

Description	Machine		Feat. number
	type	model	
N3220 Model A12	2857	A12	
N3220 Model A22	2857	A22	
Hardware features			
Fibre Channel wrap plug - LC	2857	A12, A22	1044
FC cable, 50u, 31m, LC/LC	2857	A12, A22	1051
FCoE SFP+ copper cable, 5m	2857	A12, A22	1055
10 GbE SFP+	2857	A12, A22	2013
8 Gb FC Mezzanine	2857	A12, A22	2030
10 GbE Mezzanine	2857	A12, A22	2031
HDD Blank Panel	2857	A12, A22	4099
450 GB SAS Drive	2857	A12, A22	4100
600 GB SAS Drive	2857	A12, A22	4101
600 GB FDE-SAS Drive	2857	A12, A22	4201
Licensed Function Indicators			
Data ONTAP Essentials	2857	A12	A8P0
FCP	2857	A12	A8P1
iSCSI	2857	A12	A8P2
CIFS	2857	A12	A8P3
NFS	2857	A12	A8P4
Data ONTAP	2857	A12	A8P7
SnapRestore	2857	A12	A8P8
SnapMirror	2857	A12	A8P9
SnapVault	2857	A12	A8PA
FlexClone	2857	A12	A8PB
SnapManager Suite	2857	A12	A8PC
Complete Bundle	2857	A12	A8PD
Data ONTAP Essentials	2857	A22	A8PH
FCP	2857	A22	A8PJ
iSCSI	2857	A22	A8PK
CIFS	2857	A22	A8PL
NFS	2857	A22	A8PM
Data ONTAP	2857	A22	A8PQ
SnapRestore	2857	A22	A8PR
SnapMirror	2857	A22	A8PS
SnapVault	2857	A22	A8PT
FlexClone	2857	A22	A8PU
SnapManager Suite	2857	A22	A8PV
Complete Bundle	2857	A22	A8PW
Host software			
SnapDrive for UNIX - AIX	2857	A12, A22	8024
SnapDrive for UNIX - Solaris	2857	A12, A22	8025
SnapDrive for UNIX - HPUX	2857	A12, A22	8026
SnapDrive for UNIX - Linux	2857	A12, A22	8027
SnapDrive for Windows	2857	A12, A22	8050
ONTAP DSM for Windows MPIO	2857	A12, A22	8052
SnapManager/Oracle - WIN	2857	A12, A22	8129
SnapManager/Exchange - Host	2857	A12, A22	8131
SnapManager/VI - Host	2857	A12, A22	8133
SnapMgr Hyper-V - Host	2857	A12, A22	8135
SnapManager for SAP - win	2857	A12, A22	8140
SnapManager for SQL - Host	2857	A12, A22	8141
SnapManager for Oracle	2857	A12, A22	8143
SnapManager for SAP	2857	A12, A22	8145
SnapManager SharePoint-Host	2857	A12, A22	8147
SM SharePoint Mgmt. Bundle	2857	A12, A22	8149
Single Mbox Recovery 100pk	2857	A12, A22	8150
Single Mbox Recovery 500pk	2857	A12, A22	8151
Single Mbox Recovery 1000pk	2857	A12, A22	8152

Single Mbox Recovery 2500pk	2857	A12, A22	8153
Single Mbox Recovery 5K pk	2857	A12, A22	8154
Single Mbox Recovery 10K pk	2857	A12, A22	8155
Single Mbox Recovery 50K pk	2857	A12, A22	8156
SMBR CA-ARCSERVE Extract wiz	2857	A12, A22	8158
SMBR Tivoli Tape Extract wiz	2857	A12, A22	8159
SMBR Legato Tape Extract wiz	2857	A12, A22	8160
SMBR NetBackup Extract Wiz	2857	A12, A22	8161
SMBR PST Tape Extract wiz	2857	A12, A22	8162
SMBR HP Extract Wiz	2857	A12, A22	8163
SMBR Commvault Galaxy Ex wiz	2857	A12, A22	8164
SMBR UltraBac Extract Wizard	2857	A12, A22	8165
SMBR Agent for Adv Search	2857	A12, A22	8166
SMBR Content Analysis Wizard	2857	A12, A22	8167
SMBR Administrative Server	2857	A12, A22	8168
SMSF Archiver - Host	2857	A12, A22	8186
OnCommand Core	2857	A12, A22	8255

Power Cords

PDU Pwr Cord, 42U Rack	2857	A12, A22	9000
Power Cord, Cont. Europe	2857	A12, A22	9001
Power Cord, United Kingdom	2857	A12, A22	9002
Power Cord, Japan	2857	A12, A22	9003
Power Cord, North America	2857	A12, A22	9004
Power Cord, Australia/N.Z.	2857	A12, A22	9005
Power Cord, Switzerland	2857	A12, A22	9006
Power Cord, Argentina	2857	A12, A22	9007
Power Cord, China	2857	A12, A22	9008
Power Cord, Denmark	2857	A12, A22	9009
Power Cord, India/S.Africa	2857	A12, A22	9010
Power Cord, Israel	2857	A12, A22	9011
Power Cord, Italy	2857	A12, A22	9012
Power Cord, N.America 250V	2857	A12, A22	9013
Power Cord, Brazil	2857	A12, A22	9014
Power Cord, Taiwan	2857	A12, A22	9015
Power Cord, Taiwan 250V	2857	A12, A22	9016

Installation

Plant install in 2101 rack	2857	A12, A22	9201
Field install rack mount kit	2857	A12, A22	9202
Uninstalled code authorization	2857	A12, A22	9550

MES ordering

MES Order Indicator	2857	A12, A22	9555
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Global Finance transaction

IGF Transaction Indicator	2857	A12, A22	9556
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Port/loop counts

Num. of FC Target Ports	2857	A12, A22	9557
Num. of FC Storage Loops	2857	A12, A22	9558
Num. of SATA Storage Loops	2857	A12, A22	9559

Dual-path FC Cabling	2857	A22	9560
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	Mach/Mod/Feat	Plant/ Field install	MES removal	Cabl req.	CSU (1)
Fibre Channel wrap plug - LC	2857/A12/1044	Both	Y	N	Y
FC cable, 50u, 31m, LC/LC	2857/A12/1051	Both	Y	N	Y
FCoE SFP+ copper cable, 5m	2857/A12/1055	Both	Y	N	Y
10 GbE SFP+	2857/A12/2013	Both	Y	N	Y
8 Gb FC Mezzanine	2857/A12/2030	Both	Y	N	Y
10 GbE Mezzanine	2857/A12/2031	Both	Y	N	Y
HDD Blank Panel	2857/A12/4099	Field	Y	N	Y
450 GB SAS Drive	2857/A12/4100	Both	Y	N	Y
600 GB SAS Drive	2857/A12/4101	Both	Y	N	Y
600 GB FDE-SAS Drive	2857/A12/4201	Both	Y	N	Y
Data ONTAP Essentials	2857/A12/A8P0	Both	N(2)	N	Y
FCP	2857/A12/A8P1	Both	N(2)	N	Y
iSCSI	2857/A12/A8P2	Both	N(2)	N	Y
CIFS	2857/A12/A8P3	Both	N(2)	N	Y
NFS	2857/A12/A8P4	Both	N(2)	N	Y

Data ONTAP	2857/A12/A8P7	Both(3)	N(2)	N	Y
SnapRestore	2857/A12/A8P8	Both	N(2)	N	Y
SnapMirror	2857/A12/A8P9	Both	N(2)	N	Y
SnapVault	2857/A12/A8PA	Both	N(2)	N	Y
FlexClone	2857/A12/A8PB	Both	N(2)	N	Y
SnapManager Suite	2857/A12/A8PC	Both	N(2)	N	Y
Complete Bundle	2857/A12/A8PD	Both(3)	N(2)	N	Y
SnapDrive for UNIX - AIX	2857/A12/8024	Both	N	N	Y
SnapDrive for UNIX - Solaris	2857/A12/8025	Both	N	N	Y
SnapDrive for UNIX - HPUX	2857/A12/8026	Both	N	N	Y
SnapDrive for UNIX - Linux	2857/A12/8027	Both	N	N	Y
SnapDrive for Windows	2857/A12/8050	Both	N	N	Y
ONTAP DSM for Windows MPIO	2857/A12/8052	Both	N	N	Y
SnapManager/Oracle - WIN	2857/A12/8129	Both	N	N	Y
SnapManager/Exchange - Host	2857/A12/8131	Both	N	N	Y
SnapManager/VI - Host	2857/A12/8133	Both	N	N	Y
SnapMgr Hyper-V - Host	2857/A12/8135	Both	N	N	Y
SnapManager for SAP - Win	2857/A12/8140	Both	N	N	Y
SnapManager for SQL - Host	2857/A12/8141	Both	N	N	Y
SnapManager for Oracle	2857/A12/8143	Both	N	N	Y
SnapManager for SAP	2857/A12/8145	Both	N	N	Y
SnapManager SharePoint-Host	2857/A12/8147	Both	N	N	Y
SM SharePoint Mgmt. Bundle	2857/A12/8149	Both	N	N	Y
Single Mbox Recovery 100pk	2857/A12/8150	Both	N	N	Y
Single Mbox Recovery 500pk	2857/A12/8151	Both	N	N	Y
Single Mbox Recovery 1000pk	2857/A12/8152	Both	N	N	Y
Single Mbox Recovery 2500pk	2857/A12/8153	Both	N	N	Y
Single Mbox Recovery 5K pk	2857/A12/8154	Both	N	N	Y
Single Mbox Recovery 10K pk	2857/A12/8155	Both	N	N	Y
Single Mbox Recovery 50K pk	2857/A12/8156	Both	N	N	Y
SMBR CA-ARCSERVE Extract Wiz	2857/A12/8158	Both	N	N	Y
SMBR Tivoli Tape Extract Wiz	2857/A12/8159	Both	N	N	Y
SMBR Legato Tape Extract Wiz	2857/A12/8160	Both	N	N	Y
SMBR NetBackup Extract Wiz	2857/A12/8161	Both	N	N	Y
SMBR PST Tape Extract Wiz	2857/A12/8162	Both	N	N	Y
SMBR HP Extract Wiz	2857/A12/8163	Both	N	N	Y
SMBR Commvault Galaxy Ex Wiz	2857/A12/8164	Both	N	N	Y
SMBR UltraBac Extract Wizard	2857/A12/8165	Both	N	N	Y
SMBR Agent for Adv Search	2857/A12/8166	Both	N	N	Y
SMBR Content Analysis Wizard	2857/A12/8167	Both	N	N	Y
SMBR Administrative Server	2857/A12/8168	Both	N	N	Y
SMSP Archiver - Host	2857/A12/8186	Both	N	N	Y
OnCommand Core	2857/A12/8255	Both	N	N	Y
PDU Pwr Cord, 42U Rack	2857/A12/9000	Both	N	N	Y
Power Cord, Cont. Europe	2857/A12/9001	Both	N	N	Y
Power Cord, UK	2857/A12/9002	Both	N	N	Y
Power Cord, Japan	2857/A12/9003	Both	N	N	Y
Power Cord, North America	2857/A12/9004	Both	N	N	Y
Power Cord, Australia/N.Z.	2857/A12/9005	Both	N	N	Y
Power Cord, Switzerland	2857/A12/9006	Both	N	N	Y
Power Cord, Argentina	2857/A12/9007	Both	N	N	Y
Power Cord, China	2857/A12/9008	Both	N	N	Y
Power Cord, Denmark	2857/A12/9009	Both	N	N	Y
Power Cord, India/S.Africa	2857/A12/9010	Both	N	N	Y
Power Cord, Israel	2857/A12/9011	Both	N	N	Y
Power Cord, Italy	2857/A12/9012	Both	N	N	Y
Power Cord, N.America 250V	2857/A12/9013	Both	N	N	Y
Power Cord, Brazil	2857/A12/9014	Both	N	N	Y
Power Cord, Taiwan	2857/A12/9015	Both	N	N	Y
Power Cord, Taiwan 250V	2857/A12/9016	Both	N	N	Y
Plant install in 2101 rack	2857/A12/9201	Plant	N	N	Y
Field install rack mount kit	2857/A12/9202	Plant	N	N	Y
Uninstalled code authoriz	2857/A12/9550	Plant	N	N	Y
MES Order Indicator	2857/A12/9555	Field	N	N	Y
IGF Transaction Indicator	2857/A12/9556	Field	N	N	Y
Num. of FC Target Ports	2857/A12/9557	Plant	N	N	Y
Num. of FC Storage Loops	2857/A12/9558	Plant	N	N	Y
Num. of SATA Storage Loops	2857/A12/9559	Plant	N	N	Y
Fibre Channel wrap plug - LC	2857/A22/1044	Both	Y	N	Y
FC cable, 50u, 31m, LC/LC	2857/A22/1051	Both	Y	N	Y
FCoE SFP+ copper cable, 5m	2857/A22/1055	Both	Y	N	Y
10 GbE SFP+	2857/A22/2013	Both	Y	N	Y
8 Gb FC Mezzanine	2857/A22/2030	Both	Y	N	Y

10 GbE Mezzanine	2857/A22/2031	Both	Y	N	Y
HDD Blank Panel	2857/A22/4099	Field	Y	N	Y
450 GB SAS Drive	2857/A22/4100	Both	Y	N	Y
600 GB SAS Drive	2857/A22/4101	Both	Y	N	Y
600 GB FDE-SAS Drive	2857/A22/4201	Both	Y	N	Y
Data ONTAP Essentials	2857/A22/A8PH	Both	N(2)	N	Y
FCP	2857/A22/A8PJ	Both	N(2)	N	Y
iSCSI	2857/A22/A8PK	Both	N(2)	N	Y
CIFS	2857/A22/A8PL	Both	N(2)	N	Y
NFS	2857/A22/A8PM	Both	N(2)	N	Y
Data ONTAP	2857/A22/A8PQ	Both(3)	N(2)	N	Y
SnapRestore	2857/A22/A8PR	Both	N(2)	N	Y
SnapMirror	2857/A22/A8PS	Both	N(2)	N	Y
SnapVault	2857/A22/A8PT	Both	N(2)	N	Y
FlexClone	2857/A22/A8PU	Both	N(2)	N	Y
SnapManager Suite	2857/A22/A8PV	Both	N(2)	N	Y
Complete Bundle	2857/A22/A8PW	Both(3)	N(2)	N	Y
SnapDrive for UNIX - AIX	2857/A22/8024	Both	N	N	Y
SnapDrive for UNIX - Solaris	2857/A22/8025	Both	N	N	Y
SnapDrive for UNIX - HPUX	2857/A22/8026	Both	N	N	Y
SnapDrive for UNIX - Linux	2857/A22/8027	Both	N	N	Y
SnapDrive for Windows	2857/A22/8050	Both	N	N	Y
ONTAP DSM for Windows MPIO	2857/A22/8052	Both	N	N	Y
SnapManager/Oracle - WIN	2857/A22/8129	Both	N	N	Y
SnapManager/Exchange - Host	2857/A22/8131	Both	N	N	Y
SnapManager/VI - Host	2857/A22/8133	Both	N	N	Y
SnapMgr Hyper-V - Host	2857/A22/8135	Both	N	N	Y
SnapManager for SAP - Win	2857/A22/8140	Both	N	N	Y
SnapManager for SQL - Host	2857/A22/8141	Both	N	N	Y
SnapManager for Oracle	2857/A22/8143	Both	N	N	Y
SnapManager for SAP	2857/A22/8145	Both	N	N	Y
SnapManager SharePoint-Host	2857/A22/8147	Both	N	N	Y
SM SharePoint Mgmt. Bundle	2857/A22/8149	Both	N	N	Y
Single Mbox Recovery 100pk	2857/A22/8150	Both	N	N	Y
Single Mbox Recovery 500pk	2857/A22/8151	Both	N	N	Y
Single Mbox Recovery 1000pk	2857/A22/8152	Both	N	N	Y
Single Mbox Recovery 2500pk	2857/A22/8153	Both	N	N	Y
Single Mbox Recovery 5k pk	2857/A22/8154	Both	N	N	Y
Single Mbox Recovery 10K pk	2857/A22/8155	Both	N	N	Y
Single Mbox Recovery 50K pk	2857/A22/8156	Both	N	N	Y
SMBR CA-ARCSERVE Extract Wiz	2857/A22/8158	Both	N	N	Y
SMBR Tivoli Tape Extract Wiz	2857/A22/8159	Both	N	N	Y
SMBR Legato Tape Extract Wiz	2857/A22/8160	Both	N	N	Y
SMBR NetBackup Extract Wiz	2857/A22/8161	Both	N	N	Y
SMBR PST Tape Extract Wiz	2857/A22/8162	Both	N	N	Y
SMBR HP Extract Wiz	2857/A22/8163	Both	N	N	Y
SMBR Commvault Galaxy Ex Wiz	2857/A22/8164	Both	N	N	Y
SMBR UltraBac Extract Wizard	2857/A22/8165	Both	N	N	Y
SMBR Agent for Adv Search	2857/A22/8166	Both	N	N	Y
SMBR Content Analysis Wizard	2857/A22/8167	Both	N	N	Y
SMBR Administrative Server	2857/A22/8168	Both	N	N	Y
SMSP Archiver - Host	2857/A22/8186	Both	N	N	Y
OnCommand Core	2857/A22/8255	Both	N	N	Y
PDU Pwr Cord, 42U Rack	2857/A22/9000	Both	N	N	Y
Power Cord, Cont. Europe	2857/A22/9001	Both	N	N	Y
Power Cord, UK	2857/A22/9002	Both	N	N	Y
Power Cord, Japan	2857/A22/9003	Both	N	N	Y
Power Cord, North America	2857/A22/9004	Both	N	N	Y
Power Cord, Australia/N.Z.	2857/A22/9005	Both	N	N	Y
Power Cord, Switzerland	2857/A22/9006	Both	N	N	Y
Power Cord, Argentina	2857/A22/9007	Both	N	N	Y
Power Cord, China	2857/A22/9008	Both	N	N	Y
Power Cord, Denmark	2857/A22/9009	Both	N	N	Y
Power Cord, India/S.Africa	2857/A22/9010	Both	N	N	Y
Power Cord, Israel	2857/A22/9011	Both	N	N	Y
Power Cord, Italy	2857/A22/9012	Both	N	N	Y
Power Cord, N.America 250V	2857/A22/9013	Both	N	N	Y
Power Cord, Brazil	2857/A22/9014	Both	N	N	Y
Power Cord, Taiwan	2857/A22/9015	Both	N	N	Y
Power Cord, Taiwan 250V	2857/A22/9016	Both	N	N	Y
Plant install in 2101 rack	2857/A22/9201	Plant	N	N	Y
Field install rack mount kit	2857/A22/9202	Plant	N	N	Y
Uninstalled code authoriz	2857/A22/9550	Plant	N	N	Y
MES Order Indicator	2857/A22/9555	Field	N	N	Y

IGF Transaction Indicator	2857/A22/9556	Field	N	N	Y
Num. of FC Target Ports	2857/A22/9557	Plant	N	N	Y
Num. of FC Storage Loops	2857/A22/9558	Plant	N	N	Y
Num. of SATA Storage Loops	2857/A22/9559	Plant	N	N	Y
Dual-path FC Cabling	2857/A22/9560	Plant	N	N	Y

(1) Customer setup

(2) The feature can be removed only through a feature conversion transaction.

(3) The feature is field install only during during a model conversion.

Model conversion purchase price

Machine Type 2857 - model conversions

From Model	To Model	Returned Parts
A12	A22	No

Feature conversion purchase price

Feature from	to	Returned parts	Continuous maintenance
A8P0	A8PH	N	Y
A8P1	A8PJ	N	Y
A8P2	A8PK	N	Y
A8P3	A8PL	N	Y
A8P4	A8PM	N	Y
A8P7	A8PQ	N	Y
A8P8	A8PR	N	Y
A8P9	A8PS	N	Y
A8PA	A8PT	N	Y
A8PB	A8PU	N	Y
A8PC	A8PV	N	Y
A8PD	A8PW	N	Y

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